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The photogravure of the Trifid nebula which accompanies this article* was made from a photograph taken with the Crossley reflector on July 6, 1899, with an exposure of three hours. It was not selected as a specimen of the work of the instrument, for the negative was made in the early stages of the experiments that I have described and the star-images are not good, but rather on account of the interest of the subject. At the time the photogravures were ordered no large-scale photograph of the Trifid nebula had, so far as I am aware, ever been published.† The remarkable branching structure of the nebula is fairly well shown in the photogravure, though less distinctly than in the transparency from which it was made. The enlargement as compared with the original negative, is 2.9 diameters, ($1^{mm} = 13''$). The fainter parts of the nebula would be shown more satisfactorily by a longer exposure.

DESCRIPTION OF PROFESSOR KEELER'S MERIDIAN CIRCLE.

[The instrument was constructed by Professor KEELER in 1877, at which time the sketch on the next page was made. The following description of it was written by Professor KEELER in 1885.]

"The telescope of the instrument was originally part of a spy-glass. It was separated at the eye-end of the outer tube and the two parts screwed into an axis of wood (cedar), turned into the shape shown in the illustration. The pivots were formed by copper ferrules driven on and turned at the same time, as nearly equal as possible. They rested not in Y's but in semicircular bearings of brass, formed by turning an aperture in a brass plate which was afterwards cut into two pieces. The axis was rendered horizontal by a small ordinary spirit-level (no graduation), fastened on a wooden bar, having at the ends brass uprights, with (I think) square ends, to rest on the pivots. One of the brass bearings of the pivots was adjustable. The cross-wires were spider-lines cemented to a small leaden ring, movable across the field of view by the screw shown near the eye-piece, a spring being placed opposite to keep the ring pressed against the end of the screw. These wires were illuminated by a small kerosene lamp in the box shown on the left, the axis being perforated and an elliptical reflector of paper with central aperture being placed at the intersection of the telescope and axis. The circle was made of wood, fastened together in sections. . . . The graduated circle was an engraved paper protractor divided to 15′, pasted on before the central part was cut out. It was originally designed to read by two pairs of diametrically opposite verniers, but I think only one was ever finished. I do not remember what was its least count. [Possibly no vernier; only an index.] The readings are given to single minutes, perhaps, however, by estimation.. The clamp with micrometer tangent screw was an improvement designed but never executed.

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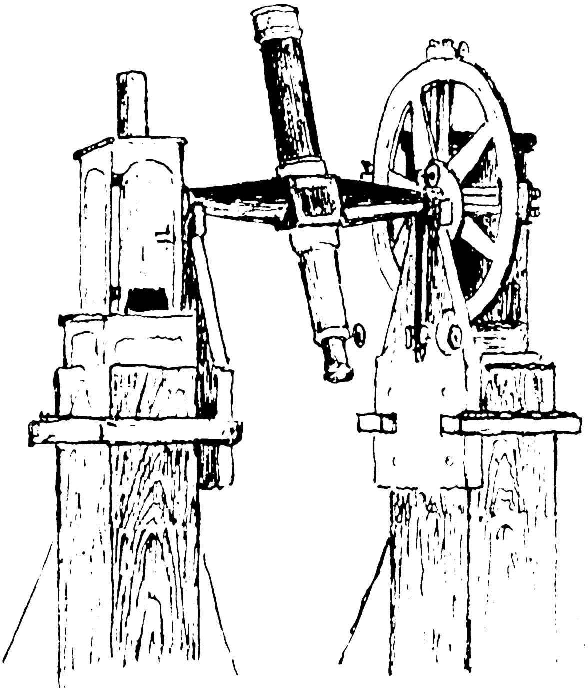
* Omitted here, as it has already been printed in these *Publications*. See *A. S. P. Publ.*, No. 74, p. 89.

† Since then a photograph by Dr. ROBERTS has appeared in *Knowledge*, No. 23, 35, Feb. 1900.



PROFESSOR KEELER'S MERIDIAN CIRCLE.

" I think the eye-piece consisted of a single convex lens.

"The piers were pieces of 6 in. × 8 in. pine sunk into the ground about two feet.

"The clock (shown behind the circle) was a small kitchen affair, and kept execrable time. It had no second-hand, and the observer made an observation by looking at the clock-face after the star was on one of the wires, mentally allowing a little for the time necessary to get up from his position at the telescope and go to the clock, and estimating the seconds as best he could.

"The instrument was protected when not in use by a cover or hood made of wood, and roofed with tarred paper, which rested upon the cleats nailed around the tops of the piers.

"To the north the horizon was invisible on account of the forest, but to the south a long sight could be obtained across the salt marsh, and a tall pine-tree nearly on the meridian served for the purposes of collimation."

A POPULAR ACCOUNT OF THE CHABOT OBSERVATORY-DOLBEER ECLIPSE EXPEDITION TO SILOAM, GEORGIA, MAY 28, 1900.

By Charles Burckhalter.

The expedition from this observatory to observe the late eclipse was at the sole expense of Mr. John Dolbeer, of San Francisco, who also paid my salary while absent from the observatory. The lantern-slides and other work sent out since my return have also been at his expense, and there yet remains a considerable balance which he refuses to receive, thus leaving me in possession of riches I scarely know what to do with,— to me a most novel and unique experience. Mr. Dolbeer had generously settled the matter nearly a year before it was necessary for me to start; the Board of Education of the city of Oakland and Superintendent McClymonds had given me the necessary leave of absence, also granting permission to use any part of the instrumental equipment of the observatory, so that I had ample time to prepare. The above happy condition is not always realized, and many a blunder has been made because preparations had to be rushed. The very greatest care must be observed in every detail of the preliminary arrangements since the result depends upon the rapid work of a few seconds. When I shipped the instruments, six weeks before I started myself, they were as ready as I could make them. Freight is an uncertain